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ABSTRACT

The effects of a perceptually oriented physical education program (PPE) on perceptual-motor ability and academic ability were studied using kindergarten and first-grade children. The four groups of kindergarten children varied the number of periods of PPE per week which then met--0, 1, 2, and 3 times per week. The four groups of first-grade children varied the amount of time per period for the PPE program--0, 20, 30, and 40 minutes per period twice a week. After 15 weeks, each of the three first-grade PPE groups was found to be significantly better than the control group in perceptual-motor ability. A significant linear trend in the data was also found. No significant differences were found among the first-grade groups in academic ability. There were also no significant differences among the kindergarten groups in either perceptual-motor ability or academic ability. (Author)

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# THE EFFECT OF PERCEPTUALLY ORIENTED PHYSICAL EDUCATION ON THE PERCEPTUAL MOTOR ABILITY AND ACADEMIC ABILITY OF KINDERGARTEN AND FIRST GRADE CHILDREN

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A fairly recent trend in physical education has been the emphasis placed on the development of perceptual skills of children through perceptual-motor training in the primary grades. This emphasis is no more apparent than in the amount of attention being given this perceptual-motor movement by the American Association for Health, Physical Education, and Recreation which established a Perceptual-Motor Task Force in 1967, and has since sponsored a number of conferences on the subject. The members of the physical education profession have been quick to realize the value these developmental programs could have for the profession. In a recent article by Carlson[1] and another by Millan,[2] however, the possibility of a bandwagon effect was suggested. As Millan[3] pointed out, research does not yet provide a solid base for perceptual-motor programs; for every study that demonstrates the value of perceptual-motor programs, there is another that suggests the opposite.[4] In contrast to Millan's reservations, many authorities are quite emphatic in their support of perceptual-motor programs. Such leaders in the perceptual field as Frostig,[5] Kephart,[6] and Delacato,[7] have no reservations regarding the value of their respective programs. Other authors also mirror these leaders' sentiments. Cohen states that it is possible through motor activities to be just as effective for developing intelligence as traditional types of classroom learning.[8] According to Krause, experts have proven there is a relationship between a child's physical development and his ability to learn.[9] And finally, McCulloch states, "The greater the perceptual skill development, the greater is the capacity for effective learning."[10]

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The enthusiasm of perceptual-motor advocates is somewhat diminished by a statement by Clifton.[11] According to Clifton:

> . . . there is little research evidence to indicate the validity of the gross motor experiences that are purported to enhance cognitive learning.

What does the research say regarding the value of perceptual-motor programs? The authors of the research articles which this researcher reviewed are about evenly divided on the value of perceptual-motor training for children. Further research, therefore, is needed before any significant conclusions regarding perceptual-motor programs can be made.

A number of authors are in agreement with this need for additional research, and have suggested the thrust for such research. Hunter for instance states:

> . . . inferences and implications of research in perceptual-motor programs are speculative and must be stringently evaluated in a practical teaching learning environment . . .[12]

Carlson feels that if the thrust by practitioners is not supported by researchers, the backlash is going to be damaging to physical education, and if physical education is to succeed in the perceptual-motor feild, accountability has to be provided by the researcher.[13] It is no longer a question of whether or not special programs of perceptual-motor development belong in the school, according to Haslinger, but rather the kind and amount of such emphasis.[14]

> We need to know more about the intensity, sequence, emphasis, amount and kind of perceptual-motor development.[15]

It is with this obvious need for research on perceptual-motor programs that this study was undertaken. In order to delimit the problem for this study,

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it was decided to term the physical education program used as the experimental variable "perceptually oriented physical education." This term is used to distinguish this researcher's program from the highly structured, individualized programs and the clinical types of programs often times associated with the term perceptual-motor program. This researcher feels that perceptually oriented physical education more clearly defines the type of program used in this study as well as many of the programs going on in public schools which are presently termed perceptual-motor.

The terminology used in this study is in line with the thinking of a number of authors in the perceptual field. For instance, Poindexter points out that:

> In my view, a perceptual-motor development program is simply a very good developmental physical education program.[16]

In agreement with Poindexter's thinking, statements by Hoffman,[17] and Haslinger,[18] further support the concept of perceptually oriented physical education.

> I agree that "good" elementary programs are indeed perceptual-motor programs.[19]

Most, if not all, activities already included in elementary physical education programs are "perceptual-motor" activities.[20] Since the concept of perceptually oriented physical education seems valid, determining its effect upon the development of kindergarten and first-grade children would seem of value.

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# THE PROBLEM

## Statement of the Problem

The main purpose of this study was to measure the effect of an elementary physical education program which emphasized the development of perceptual skills on perceptual-motor ability and academic ability of kindergarten and first-grade children. More specifically, four groups of kindergarten children received a perceptually oriented physical education program, hereafter referred to as PE, in which the number of periods of PE per week varied, and four groups of first-grade children received a perceptually oriented physical education program in which the time for PE per period varied.

A secondary purpose was to determine the relationship between perceptual-motor ability and academic ability of kindergarten and first-grade children.

## Scope of the Study

This study was limited to all the kindergarten and first-grade children enrolled at the Graceland Park - O'Donnell Heights Elementary School in Baltimore, Maryland during the fall of 1972. At the time of the pre-test, the kindergarten children ranged in age from 57 months to 71 months with an average age of 64.28 months. The first graders' age range at the pre-test was 67 months to 99 months with an average age of 74.68 months.

The ABC Inventory and Boehm Test of Basic Concepts were used to measure academic ability of the kindergarten and first-grade children respectively. The Dayton Sensory Motor Awareness Survey for 4- and 5-year olds was used

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to measure perceptual-motor ability of the kindergarten children, and the Purdue Perceptual-Motor Survey was used to measure perceptual-motor ability of the first-grade subjects.

## PROCEDURES

This study was actually in two parts - a kindergarten phase and a 1st grade phase. Although the physical education program was the same for both groups, each grade level was treated separately in the experimental design. Each grade, therefore, will be discussed separately.

### Kindergarten

All of the 78 kindergarten children were tested using the ABC Inventory which is designed to measure kindergarten readiness, and the Dayton Sensory Motor Awareness Survey for Four and Five Year Olds, which is supposed to measure the motor ability of the students.

Students were then randomly divided into one of four experimental groups. One kindergarten met once a week for 25 minutes, another met twice a week -- 25 minutes for each meeting, a third met for three 25 minute periods per week, and the fourth group did not have any physical education during the experimental period and was designated as the control.

The physical education program was the same for each experimental group except with regard to the amount of time each child received any one particular activity. The program was designed to aid in the development of the perceptual skills of children without regard to any known deficits. The program, however, was individualized as much as possible through use of a problem

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solving movement approach. Children, therefore, were able to make their own response at their level to the particular tasks presented. Stations were also used to individualize instruction by providing small groups which would allow for more teacher-pupil interaction on a one to one basis. Activities for the program came primarily from Harvat's book, PHYSICAL EDUCATION FOR CHILDREN WITH PERCEPTUAL-MOTOR LEARNING DISABILITIES, although additional sources were used to develop the total physical education program. The 15 week PE program for all experimental groups was administered by the same physical education teacher.

Data were analyzed using the product-moment correlation coefficient, an analysis of covariance, and a trend analysis. 52 students were available for final analysis. The correlation between academic readiness and perceptual-motor ability was 61, which was significant at the .05 level. There were no significant differences found among the four groups in either academic ability or perceptual-motor ability following the experimental period, and no significant trends appeared in the data.

First-Grade

The first-grade phase was separate from the kindergarten phase, although the PE program was the same as the one mentioned earlier. All the 108 first-grade children were pre-tested using the Boehm Test of Basic Skills and the Purdue Perceptual-Motor Survey. Children were then randomly divided in one of four groups. One group received two 20 minute perioss of PE per week. A second group met for two 30 minute periods per week, a third met for two 40 minute periods per week, and a fourth group, the control, did not have any physical

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education during the 15 week experimental period. The program was the same for experimental groups except with the amount of time each activity was offered.

The data were analyzed by the same procedures used in the kindergarten phase of the study -- 83 subjects were used in the final analysis. The correlation between the results of the Boehm test and the results of the Purdue test was .09. There were no significant differences found among the four groups in academic ability following the physical education program, but there was a significant difference at the .01 level in perceptual-motor ability. Using the Tukey as procedure, this researcher found a significant difference between each of the groups which received the physical education program and the control. A significant trend in the data was also found. As the amount of physical education increased, there was a corresponding increase in perceptual-motor ability.

## CONCLUSIONS

Within the limitations of this study, the following conclusions seem justified:

1. Knowledge of a kindergarten or first-grade child's perceptual-motor ability is of little value in predicting his academic ability and vice versa.
2. Perceptually oriented physical education can be used with first-grade children to improve their perceptual-motor ability.
3. Increasing the amount of perceptually oriented physical education will also increase the amount of perceptual-motor ability of first-grade children.

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FOOTNOTES

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